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The Total Economic Impact™ Of Managed Services From Hitachi Vantara For XaaS

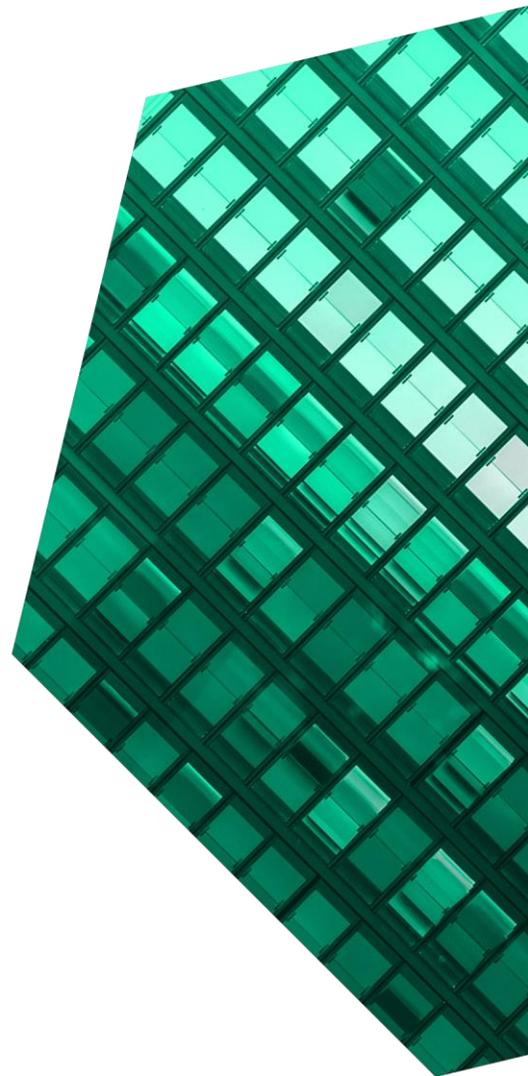
Cost Savings And Business Benefits Of Managed
Services Within The EverFlex Consumption-As-A-
Service Models

FEBRUARY 2022

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Executive Summary

Business-critical requirements for storage uptime, accessibility, and responsiveness can be difficult for IT teams to achieve. It's expensive and time-consuming to procure, install, maintain, and upgrade. It's also nearly impossible to predict how much resource will be needed over time. Forrester interviewed four IT decision-makers at companies that shifted to managed services and a flexible consumption model to quantify the value of EverFlex from Hitachi and their experience with storage as a service.

Hitachi Vantara commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study to examine the potential return on investment (ROI) enterprises may realize from the contribution of managed services within the [EverFlex](#) as-a-service offerings such as Storage as a Service from Hitachi Vantara.¹ The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Hitachi managed storage services for their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four decision-makers with experience using EverFlex from Hitachi. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single [composite organization](#).

EverFlex from Hitachi offers a number of as-a-service offerings that all utilize a flexible pay-for-consumption model with a multiyear contract: Hitachi takes on accountability for managing, replenishing, and updating resources at the customer's site or in a colocation facility. The most popular of these is Storage as a Service from Hitachi Vantara. Customers and Hitachi's managed services teams agree to specific SLAs, penalties, and a minimum spend for storage per gigabyte. As storage use increases and/or the cost of storage goes down over time, Hitachi passes on those savings to EverFlex customers.

KEY STATISTICS



Return on investment (ROI)

214%



Net present value (NPV)

\$17.64M

The director of storage and backup services at an IT services firm explained: "The structure of the contract quite simply is just a minimum spend over a five-year duration. We can flex up and down as needed between the different services as long as that overall minimum spend is met."

One customer interviewed was buying the lowest-level basic management and maintenance services for their storage installation and managing the balance of the storage operations themselves. The other three customers Forrester interviewed were all under full-service storage management for their global businesses. These full-service contract customers said they were getting better results, received more responsive support, and were paying less for storage than when they were managing storage themselves. All had extended their contracts.

Prior to contracting with Hitachi Vantara, these interviewees remembered how their organizations experienced regular downtime, which threw their

small, stretched IT teams into crisis mode on a regular basis and cost their companies for storage downtime, plus penalties.

“Before Hitachi, our estate was melting. We bought arrays that were underspecified for the use case. We had outage after outage after outage during business days when we were busiest. When we brought Hitachi in, they did very aggressively replace those arrays, and the world became a better place.”

Global head of IT infrastructure, financial services

“It’s absolutely terrifying when storage goes down, which is why I love Hitachi right now,” the VP ISC Americas for a global logistics firm said.

The VP continued, “In the past when I bought the Hitachi arrays that were millions of dollars, I had to go to an investment review board at multiple levels to get approval to spend the money just for the hardware to be ordered, shipped, and sent to the site. Then I had to spend additional funds on a SOW to get Hitachi engineers to help us configure it, connect it, and get ready for production usage and migrate the data.”

He went on to explain what it’s like now: “I receive an invoice on a monthly basis. I know what to expect in that invoice because I know what I have as a minimum commitment level, and I know what services I have agreed to.”

“My worries over storage went significantly down moving to this relationship with Hitachi. I don’t have to worry about the physical hardware anymore. I don’t have to worry about a piece of equipment failing and having to replace it. So, my stress level and the amount of time I had to spent on storage went down significantly.”

VP ISC Americas, logistics

According to the director of storage and backup services for an IT services firm Forrester interviewed: “[Hitachi’s managed services provide] full end-to-end storage management. It starts with basic monitoring, reacting to alerts, and coordinating with their back-end resources to do hardware replacements and upgrades. When we got new equipment that had to be deployed, they handled that with some discussions about logistics. Over and above that, it’s request management, processing requests, and executing changes, again, typically on provisioning.”

The director of storage and backup services also told Forrester: “It’s a lot easier to manage than it was in the past. Storage and backup tend to be considered kind of commodity items. So rather than us focusing on keeping the lights on, now we’re able to shift our focus with the stay-back team to add more value. I think the original discussions were probably more financially focused than anything else. But one of the benefits that we’ve seen over the years has been just their knowledge and the depth of experience that they’ve got.”

KEY FINDINGS

Quantified benefits. Risk-adjusted present value (PV) quantified benefits over the life of the six-year financial model include:

- **Improved service levels added \$14.8 million to the bottom line.** “In the old world, we basically were on Monday to Friday, nine-to-five, with on-call support like pagers after hours. One of the advantages of Hitachi, because they are doing this for other providers as well, [is that] they are full 24/7 because they’ve got a critical mass in order to be able to staff that way,” explained the VP ISC Americas for a global logistics firm.

Interviewees said they were protected from loss of revenue from storage downtime and also avoided costs of downtime penalties. The executives told Forrester that they had seen a dramatic reduction in unplanned downtime once Hitachi took over their storage management.

Avoided on-premises storage costs saved \$5.8 million. Interviewees’ organizations achieved this by shifting from upfront purchase of storage to pay-for-consumption. As the director of storage and backup for an IT services firm noted: “A refresh project we looked at for some of our SAN switches was upwards of about \$30 million in new hardware. When you go up the ladder and you say, ‘I want to spend \$30 million or I want to spend X number of dollars a month,’ and you can flex up and flex down, it’s a very easy business case.”

“Response time for critical incidents is drastically better than when we were doing this ourselves. It’s like a firefighter...they’re not fighting fires all the time; they’re proactively working to prevent problems.”

— Director of storage and backup services, IT services

“We used to have capital investments — now we have rent. It has saved a tremendous amount of time in the procurement process and improved financial flows. Instead of one large invoice, now we pay every month through this consumption-based billing.”

Storage architect, insurance

- **Streamlined IT team operations lowered expenses by \$5.3 million.** Instead of investing in large IT teams to manage storage operations, the IT executives at the companies under full-service contracts with Hitachi said their IT staff now had a more proactive approach to the business.

“Now our team is getting into value-add conversations as opposed to simply just being the button-pushers in the middle of the night,” said the global head of IT infrastructure at a financial services firm.

Unquantified benefits. Benefits that are not quantified for this study include:

- **IT took on a more strategic role in the business.** Interviewees told Forrester that because they and their staff were no longer dealing with storage fire drills, trying to keep up with storage innovations, or managing lengthy procurement and internal approval processes, they could add more value to the business by being more proactive advisors to their internal stakeholders and clients.
- **Increased job satisfaction due to peace of mind.** Because the Hitachi managed services

team is accountable for storage availability and provides 24/7 incident response, interviewees told Forrester they felt a tremendous responsibility removed from their shoulders. Many commented that they slept better, both because they were less anxious about potential incidents and because they were literally not awoken in the middle of the night to address an outage.

- **Collaborative partnership with storage experts.** Interviewees said they all gained access to a large team of experts that they couldn't have afforded to hire. They trusted Hitachi as a reliable and innovative storage manufacturer to be best at managing their storage products for each company's specific business needs. Hitachi managed services teams worked both reactively and proactively to meet SLAs and were seen as long-term partners.

“I don't want to have anything to do with managing storage. Before we contracted with Hitachi, we didn't have the expertise in-house. Now I really only worry about the financial stuff. I don't have to worry about much of anything else.”

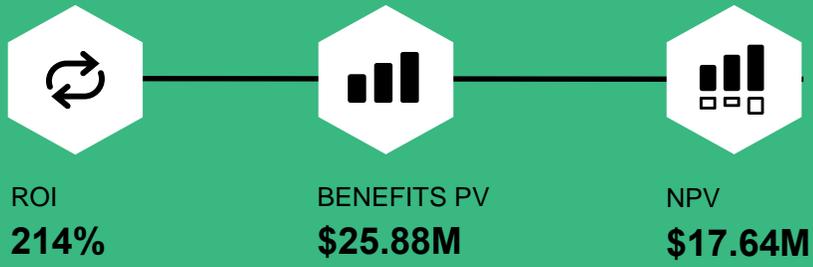
VP ISC Americas, logistics

Costs. Risk-adjusted PV costs over the five years of the model include:

- **Contract fees of \$8.0 million.** The total spend over the life of the five-year contract included both premium and archival storage fees.

- **Design and implementation fees of just over \$210,000.** The organization pays for Hitachi to undertake the required upfront work to enable them to assume responsibility for the on-premises storage.

The decision-maker interviews and financial analysis found that a composite organization experiences benefits of \$25.88 million over six years versus costs of \$8.24 million, adding up to a net present value (NPV) of \$17.64 million and an ROI of 214%.



Benefits (Five-Year)



TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in managed services from Hitachi Vantara as part of their flexible consumption and as-a-service EverFlex solutions.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that EverFlex can have on an organization.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Hitachi Vantara and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in an EverFlex solution.

Hitachi Vantara reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

Hitachi Vantara provided the customer names for the interviews but did not participate in the interviews.



DUE DILIGENCE

Interviewed Hitachi Vantara stakeholders and Forrester analysts to gather data relative to managed services.



CUSTOMER INTERVIEWS

Interviewed four decision-makers at organizations using the managed services to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewed organizations.



FINANCIAL MODEL FRAMEWORK

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.



CASE STUDY

Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The Infrastructure Managed Services Customer Journey

■ Drivers leading to the investment in Managed Services as part of the EverFlex solution from Hitachi

Interviewed Decision-Makers

Interviewee	Industry	Region	Estimated Annual Revenue
VP ISC Americas	Logistics	Americas	\$7 billion
Global head of IT infrastructure	Financial services	Global	\$12 billion
Director of storage and backup services	IT services	Global	\$9.5 billion
Storage architect	Insurance	Europe	\$174 billion

KEY CHALLENGES

The IT decision-makers whom Forrester interviewed said their key challenges were storage downtime, time spent troubleshooting storage downtime, and ensuring enough storage was available and specified properly as their business needs changed.

The VP ISC Americas for a global logistics company said: “If storage is not reliable, if storage is not at a speed that is acceptable for the application, then nothing works. Everything that makes a company tick touches storage in one way or another. So if that thing was to die, the company’s applications die, just like your heart.” He went on to explain that for end users, customers, and partners to access the applications they need, “an IT organization has to ensure that’s smooth — making sure there’s enough bandwidth for the network, making sure the application redundancy and disaster recovery are working.”

All the interviewees said storage forecasting, procuring, troubleshooting, planning, innovating, and refreshing are complex and require people with many different and specific skill sets their IT organizations did not have, nor could they afford hiring and retaining these storage experts.

The VP ISC Americas at a global logistics firm explained: “It’s absolutely terrifying when storage goes down. It’s a nightmare. Before Hitachi came in, we weren’t staffed properly, we didn’t have the technical expertise, and I didn’t sleep for two years. I didn’t want to have anything to do with managing storage!”

The interviewees noted that their organizations struggled with common challenges, including:

- **A patchwork of storage technologies.** Firms relied on a kitchen-sink approach, leveraging technologies from different vendors that they were trying to “stretch” and which often were not optimized for the specific jobs they now needed to perform.
- **Frequent storage downtime.** Outages resulted from suboptimal capital and human investments.
- **A small generalist IT staff.** IT teams were stressed and spent nights and weekends on-call to troubleshoot storage issues.
- **A long process of getting internal approvals.** Decision-makers spoke of significant time investments in buying new storage equipment, forecasting storage needs and justifying capital investments to leadership.

SOLUTION REQUIREMENTS/INVESTMENT OBJECTIVES

Interviewees all told Forrester that selecting the vendor to manage their storage on-premises involved an evaluation of many factors:

- Who makes the best, most reliable storage hardware that we have personal experience using?
- Who will be the best-in-class storage manufacturer in the next three to five years? Who is both innovative and reliable?
- Who would do the best job managing that hardware? Interviewees believed that the storage manufacturers' people would be best at managing their own equipment.
- How will the Hitachi people be to work with? Will they be good partners? Will they work with our existing equipment?
- Is this a fair price? Is it flexible if things change?

- Who do we trust to partner with for this critical part of our infrastructure?

All interviewees narrowed their list of vendors to a shortlist that included only the companies they felt manufactured reliable storage equipment. They all had positive personal experiences with Hitachi storage hardware. "Originally, we talked to Hitachi simply because they knew the hardware," said the global head of IT infrastructure for a financial services firm. "Going to the manufacturer to get better pricing and better support from their own internal resources — you can't beat that scenario."

The VP ISC Americas at a global logistics company said outsourcing storage management at their organizations was "an easy conversation with management to say, I know I'm going to spend this much per month and it's going to be consistent month-on-month based on this data, rather than having to go ask for \$2 million to purchase hardware and hire more people." The other interviewees all made similar statements.

"They have 100 people managing my storage at different tiers. I had ten people on my team managing storage."

— Global head of IT infrastructure, financial services

Interviewees also shared that their own lives improved when they contracted with the Hitachi managed services team. “We won’t be paged at 3:00 in the morning,” one IT decision-maker said. “Our people can focus on more value-add to the business,” said another.

Each of the IT decision-makers Forrester interviewed said they went through a lengthy process working with and getting to know Hitachi’s managed services team during the contract-specifying process and that this time spent with their people was a key determining factor in their decision to select an EverFlex solution.

The global head of IT infrastructure for a financial services firm said: “The initial risk was obviously an unknown provider. We knew Hitachi made good hardware, but we had no idea what they were like from a services standpoint.” Interviewees confirmed for Forrester that the Hitachi managed services people they met and worked with during the contract negotiation wanted a long-term partnership that was a win-win and a relationship that exceeded their expectations during the course of the contract.

Interviewees said they felt the pricing and contract terms were beneficial because:

- Hitachi had a minimum commit and a buffer it determined (for most it was 20%), but they were only committed to pay for the minimum.
- Hitachi committed to a set of SLAs and to staffing as required to meet those SLAs, rather than a specific number or tier of FTEs.
- Hitachi took on managing non-Hitachi equipment that did not yet need to be decommissioned.
- Hitachi agreed to pass through savings when its costs for storage went down.
- When their storage needs increased, EverFlex solutions offered a lower price per gigabyte.

“Uptime, availability performance, and reaction time,” said the VP ISC Americas for a global logistics firm.

“We gave them an SLA that was what we needed, and they had to provide it whether it was four people or 20 people. That was up to them, not us.”

The global head of IT infrastructure at a financial services firm said he gave Hitachi managed services two primary SLAs, both entirely within Hitachi’s control: availability and response to incidents.

“I wanted a solution where we had storage on-premises, and they would deal with the performance and the capacity,” the VP ISC Americas for a global logistics company said. “We didn’t have the expertise in-house, which is why Hitachi became an attractive option because it allowed us to not have to maintain a full-time staff of storage engineers.”

After contracting with Hitachi and working with their teams, the IT decision-makers Forrester interviewed said the following about Hitachi managing their storage at their data centers:

- The director of storage and backup services at an IT services firm explained: “I don’t have to worry about all the hardware, the configuration, and capacity management. I just have to be upfront with them to say [that] I know our minimum commit level is X; I know I’m going to use Y. You need to make sure there’s enough on the floor to cover my needs.”
- The VP ISC Americas for a global logistics company told Forrester: “Now it’s really only managing the vendor and the requests between the vendor and the application or infrastructure owner.
- The director of storage and backup services at an IT services company noted: “The relationship with Hitachi was a godsend, allowing us to move into this arrangement where we say, ‘Hey, I know I’ve got 50TB of storage coming in the next three months, be prepared.’ And then I don’t even worry about it because they’ll organize the shipping, they’ll get in a good location, they’ll get an engineer to install it, they’ll get it configured.”

And then when I say I need 12 4TB LANs, they go, 'Done!'"

- "There's been no downtime with Hitachi," said the VP ISC Americas for a global logistics firm.

“Over time, we’ve been able to expand based on how well they’ve done with what we initially asked them to do. That’s where Hitachi having the additional scale and breadth — supporting multiple platforms and technologies that are all interlinked — helps. Storage and backup are different services, but they are very closely tied together, so getting that under one service agreement definitely helped us.”

Director of storage and backup services, IT services

All the interviewees for full-service storage contracts extended and expanded them based on the results, process, and people partnership with Hitachi managed services team.

“It’s been a very good partnership,” the global head of IT infrastructure at a financial services firm told Forrester. “The nature of how our contracts have grown just shows how well things have been working.”

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected.

The composite organization is representative of the four decision-makers that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The company is a global manufacturing firm with headquarters in Europe. Due to both industry/customer expectations and local regulations, the company has made the decision to keep its data on-premises. The firm plans to move to EverFlex managed services over the coming five years as its current equipment is decommissioned and will use a total of 15PB of storage each year during that time.

Key assumptions

- **Industrial Manufacturer**
- **Global, HQ in Europe**
- **15PB on-premises storage**

Analysis Of Benefits

■ Quantified benefit data as applied to the composite

Total Benefits								
Ref.	Benefit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
Atr	Improved service levels	\$2,249,844	\$3,599,750	\$3,599,750	\$5,399,625	\$5,399,625	\$20,248,594	\$14,765,617
Btr	Avoided on-premises storage costs	\$727,899	\$1,455,801	\$1,455,801	\$2,183,700	\$2,183,700	\$8,006,900	\$5,806,034
Ctr	Streamlined IT team operations	\$766,460	\$807,120	\$1,561,040	\$1,708,480	\$2,578,680	\$7,421,780	\$5,304,728
	Total benefits (risk-adjusted)	\$3,744,203	\$5,862,671	\$6,616,591	\$9,291,805	\$10,162,005	\$35,677,274	\$25,876,379

IMPROVED SERVICE LEVELS

Evidence and data. For the interviewed executives, storage was the heartbeat of the data center. If their storage wasn't performing well, nothing performed well. Before Hitachi, the interviewees said they didn't have the tools and storage experts available to both reactively and proactively identify problems, and they spent a lot of engineering time troubleshooting storage issues. They all said they experienced storage downtime before shifting to EverFlex solutions.

"One client's primary responsibility is transferring the money between banks — it's in the billions of dollars a day that move back and forth around between them and the stock — so any type of storage outage is catastrophic," explained the director of storage and backup services for an IT services company.

Interviewees told Forrester that with the managed services within their EverFlex solutions they:

- **Had virtually no unplanned storage downtime.** Said the director of storage and backup services for a global IT services firm: "There's been no downtime. My SLAs are technically five 9s or better. That just speaks to the reliability of the service."

"Since we moved to Hitachi for the US, it has been 100% uptime, with only maintenance activities that were scheduled," noted the VP ISC Americas for a global logistics firm.

"The main reason we went with Hitachi was stability, because we had so many outages," the global head of IT infrastructure at a financial services firm said. "Hitachi has been a very, very solid service."

- **Controlled storage downtime and accessibility speed.** "Now with Hitachi, for our most critical boxes where we want to spend a little bit more because we are going to lose millions and millions of dollars every day that we're down, we can easily choose gold, silver, or bronze, depending on what the requirements are and our tolerance for risk," said the director of storage and backup services in IT services.
- **Gained access to a large team of experts working on their business 24/7.** This was something none of the interviewees' companies could afford to invest in internally. The director of storage and backup services for an IT services firm told Forrester: "Hitachi having full 24/7 support automatically improved response time and storage availability resources. Hitachi technical experts really know the equipment

because they manufacture it. They've got direct lines back to their engineers. Before Hitachi, someone on our team would get paged at 3:00 in the morning whenever there was a system failure."

- **Collaborated with Hitachi's storage experts.** Hitachi's team proactively set up preventative systems and processes to avoid unplanned storage downtime. The VP ISC Americas for a global logistics firm reported: "We've not had to engage in escalation events with Hitachi. There is not a pattern or history of escalations and pushing the vendor and arguing and fighting and having to get to a final resolution. In most cases, it never gets past that first level."

Modeling and assumptions. Modeling the value of downtime in an organization is a difficult task, as the likelihood and cost of downtime varies greatly by size of organization, industry vertical, degree of automation, and even likelihood that a storage failure will cause meaningful downtime.

In industries such as retail (especially e-commerce) or banking/trading, reliance on storage for database access and critical applications is high and the cost of system downtime can be catastrophic. Loss of revenue, damage to brand reputation and significant fines are often involved. For other businesses, some of these downtime costs are not applicable, and storage failure is less likely to be the culprit.

In order to assign a value to this benefit, Forrester has made the following assumptions, in keeping with the expected impact on the composite organization—a multi-billion-dollar industrial manufacturer.

- The organization experiences 60 hours of unplanned downtime per year when it manages storage itself.
- Unplanned downtime is virtually eliminated as Hitachi managed services takes responsibility for more of the firm's storage management.

"Our end users just want their applications to work. All our applications touch something that is managed by EverFlex. It is truly the heartbeat of our IT facilities. If the storage is not reliable, then nothing works."

VP ISC Americas, logistics

- In Year 1 to Year 3, downtime is 0 hours on the portion of the storage managed by EverFlex and continues at a rate of 60 hours a year on the portion managed by the organization. By Years 4 and 5, the organization has moved all of its storage to EverFlex management, and unplanned downtime is 0.
- The average cost of downtime in a large enterprise organization is approximately \$550,000 an hour. Many instances of downtime will cost considerably less if the company is smaller, the impact of the downtime confined to an individual location or team, or the firm is in an industry not as susceptible to revenue loss. For other firms, with more widespread outages that impact revenue or generate lawsuits, the cost can run into the millions.
- The overall cost of downtime for the composite, as a manufacturer, is factored down by 45%. It is not as likely to experience the huge losses of a financial services or retail firm, but downtime can take down production equipment, leave workers idle, and impact customer satisfaction.
- Forrester assumes approximately 35% of outages for the composite organization are driven by storage failure (as opposed to, for instance,

network outages, power outages, human error, or natural disasters).

Risks. The risk that another organization will experience a different level of savings from this benefit depends on:

- The amount of unplanned storage-related downtime experienced before contracting with Hitachi
- The likely severity of the impact of downtime on the organization, driven by such factors as

reliance on automation, size and type of business, workload types, etc.

- The relative likelihood that storage downtime, in particular, will be responsible for downtime events, versus other possible causes.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a five-year, risk-adjusted total PV (discounted at 10%) of \$14.8 million.

Improved Service Levels							
Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
A1	Average hours unplanned storage-related downtime before EverFlex	Interviews	60	60	60	60	60
A2	Average hours unplanned storage-related downtime after EverFlex	Interviews	35	20	20	0	0
A3	Average hourly cost of downtime	Industry sources	\$550,000	\$550,000	\$550,000	\$550,000	\$550,000
A4	Severity factor for outages in manufacturing vertical	Estimate	55%	55%	55%	55%	55%
A5	Severity factor for storage-driven outage in the vertical	Estimate	35%	35%	35%	35%	35%
A6	Average hourly cost of storage-related downtime	$A3 \cdot A4 \cdot A5$	\$105,875	\$105,875	\$105,875	\$105,875	\$105,875
At	Avoided on-premises storage costs	$(A1 - A2) \cdot A6$	\$2,646,875	\$4,235,000	\$4,235,000	\$6,352,500	\$6,352,500
	Risk adjustment	↓15%					
Atr	Avoided on-premises storage costs (risk-adjusted)		\$2,249,844	\$3,599,750	\$3,599,750	\$5,399,625	\$5,399,625
Five-year total: \$20,248,594			Five-year present value: \$14,765,617				

AVOIDED ON-PREMISES STORAGE COSTS

Evidence and data. With Hitachi managed services within their EverFlex solutions, interviewees:

- Avoided upfront payment of storage.
- Eliminated lengthy procurement and internal approval processes for storage investments.
- Removed the burden on IT staff of projecting future storage usage and forecasting how much more storage to buy as a buffer to ensure storage accessibility.
- Avoided costs for IT staff to monitor storage operations and handle troubleshooting and downtime.

“The billing is based on consumption: If we use more, we pay more; if we use less, we pay less. It was also a very important point for us that we have consumption-dependent costs because we can then easily charge our customers according to their usage.”

Storage architect, insurance

Modeling and assumptions. The value of this benefit was modeled based on the assumption that the composite organization would need to make capital investments over the five years of the model if it had not contracted with Hitachi for an EverFlex solution.

- An outlay of \$2.5 million every two years for equipment to accommodate up to 5PB of storage.

- Amortization of the equipment over a five-year life at a 7.5% weight average cost of capital.
- Maintenance contracts for that equipment at an average of 20% of its annual cost.
- Software licenses to maintain and manage the storage at a cost of 20% of the cost of the maintenance contracts.

Risks. Other organizations may experience this benefit on a different order of magnitude based on the following factors:

- The volume of storage required and the speed with which it needs to come online.
- The organization’s approach to making and accounting for capital expenditures (e.g., planned replacement at predetermined intervals versus “sweating” the assets as long as possible).
- The organization’s cost of capital.
- The total cost of software licenses associated with storage.

Results. To account for these risks, Forrester adjusted this benefit downward by 5% yielding a five-year, risk-adjusted total PV of \$5.8 million.

Avoided On-Premises Storage Costs							
Ref	Metric	Source	Year 1	Year 2	Year 3	Year 4	Year 5
B1	Capital costs for 5PB/10PB/15PB storage	$\$2.5M/5PB * 7.5\%$ WACC (5 years)	\$617,912	\$1,235,824	\$1,235,824	\$1,853,735	\$1,853,735
B2	Annual maintenance contract for on-premises storage equipment	B1*20%	\$123,582	\$247,165	\$247,165	\$370,747	\$370,747
B3	Software licenses and maintenance	B2*20%	\$24,716	\$49,433	\$49,433	\$74,149	\$74,149
Bt	Avoided on-premises storage costs	B1+B2+B3	\$766,211	\$1,532,421	\$1,532,421	\$2,298,632	\$2,298,632
	Risk adjustment	↓5%					
Btr	Avoided on-premises storage costs (risk-adjusted)		\$727,900	\$1,455,800	\$1,455,800	\$2,183,700	\$2,183,700
Five-year total: \$8,006,901			Five-year present value: \$5,806,035				

STREAMLINED IT TEAM OPERATIONS

Evidence and data. Interviewees told Forrester they and their IT team spent less time on:

- Managing procurement, internal approvals, and forecasting storage requirements.
- Installing, maintaining, and updating storage.
- Managing storage refresh.
- Troubleshooting storage downtime.
- Reacting to problems.

The VP ISC Americas for a global logistics firm told Forrester: “Their engineer brings the hardware into our data center, connects it, plugs it in, [and] configures it. I just have to point and say, ‘It goes there.’ It’s like moving house: ‘Put that in the kitchen, please.’”

Interviewees said their IT teams spent more time on:

- Adding value to the business.
- Engaging in proactive, strategic discussions with Hitachi managed services teams about optimal timing and management of storage maintenance handover from their organization to Hitachi.

All interviewees with full-service storage maintenance contracts with Hitachi said they had an excellent relationship with Hitachi managed services team. The global head of IT infrastructure for a financial services firm told Forrester that over that time they’d worked with a lot of different people and teams at Hitachi: “Through all that change, we’ve still been able to sustain the strong relationship. I’m quite content with what we have.”

The director of storage and backup services at an IT services firm explained: “For me, relationships are key in any vendor relationship. With Hitachi, I have a sales contact for when I need those services who is very responsive and very knowledgeable about his products. I have a senior architect at Hitachi who

“We approached Hitachi and said, ‘Here’s our problem.’ They said, ‘Here’s our solution.’ We said, ‘Great, let’s do it.’”

VP ISC Americas, logistics firm

knows all the technical ins and outs of the arrays and the storage switches. Then we have their Service Operating Center, which is that level one defense. And generally speaking, we never have to get past level one unless we have a new need. We're always in constant communication, and they're letting us know of new services."

"Whenever I needed more storage capacity, I would initiate a process that involved many senior people, including our board of directors. I had to prepare a profitability calculation beforehand, so that also cost me and my team time. Then purchasing would run a tender, there would be an offer, the offer would be negotiated, and then *finally* it was delivered and installed. This whole chain wasted working time for a whole range of different salary levels."

Storage architect, insurance

administering and maintaining the on-premises storage array.

- IT salaries average \$135,000 per year on a fully burdened basis and increase at a rate of 5% per year during the term of the model.
- The organization recaptures and redeploys 80% of the time saved for other productive work.

Risks. The risk that another organization will experience a different value for this benefit is tied to:

- The frequency and complexity of capital purchase decisions in the organization.
- The level of predictability in the organization's storage needs, driving time spent forecasting capacity requirements.
- The frequency and complexity of incidents that IT needs to respond to each year.
- The pay rate of IT professionals in the organization.

Results. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a five-year, risk-adjusted total PV of \$5.3 million

Modeling and assumptions. The model for this benefit assumes:

- Purchasing decisions for storage equipment are made every two years and involve approximately 150 hours of time each from three executives.
- Approximately 300 hours per year on an ongoing basis are devoted to forecasting storage needs.
- IT personnel prevent and respond to the results of storage outages and emergencies, as well as

Streamlined IT Team Operations							
Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
C1	Management hours justifying/purchasing hardware	Interviews	600	600	0	600	0
C2	Average senior management fully burdened hourly wage	\$236,250/2,080; +2%/year (TEI standard)	\$114	\$116	\$118	\$120	\$122
C3	IT hours spent managing storage, forecasting, troubleshooting, recovery	2080/PB	10,400	10,400	20,800	20,800	31,200
C4	Average fully burdened annual IT salary	\$148,500/2,080; +2%/year (TEI standard)	\$71	\$75	\$79	\$83	\$87
Ct	Streamlined IT team operations	(C1*C2)+(C3*C4)	\$806,800	\$849,600	\$1,643,200	\$1,798,400	\$2,714,400
	Risk adjustment	↓5%					
Ctr	Streamlined IT team operations (risk-adjusted)		\$766,460	\$807,120	\$1,561,040	\$1,708,480	\$2,578,680
Five-year total: \$7,421,780			Five-year present value: \$5,304,728				

UNQUANTIFIED BENEFITS

Interviewed executives also shared benefits from the Hitachi relationship and EverFlex solutions that were difficult to quantify.

- **A more strategic role in the business for IT.** Interviewees enumerated for Forrester the countless hours they and their teams spent on an array of tasks required to keep their storage operations up and running. These tasks seemed never-ending and mind-numbing, and they often required working outside of normal business hours, including weekends and emergency calls at 3 a.m. Since transitioning their storage to Hitachi, they universally reported that their teams were able to work with business leaders to plan for the current and future needs of the business. As a result, IT teams were able to contribute strategically to their organizations and command a higher level of respect and appreciation for what they do.
- **Increased job satisfaction due to peace of mind.** Interviewees universally and forcefully told Forrester that their job stress levels — and those of their team members — had dropped dramatically. Executives described the weight of responsibility they felt when they were managing storage operations. This function is so critical to basic business operations that they constantly felt the pressure of potential disaster, and many even reported that they had trouble sleeping. Since transitioning to Hitachi, they unanimously stated that their jobs and their work-life balance had improved tremendously.
- **Collaborative partnership with storage experts.** Interviewees told Forrester they enjoyed working with their Hitachi counterparts and that they held them in high regard. Hitachi team members were seen as experts in areas that were often quite specialized, and participants in this study worked well with them and appreciated their contributions to the business.

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement an EverFlex solution and later realize additional uses and business opportunities, including:

- Moving from a minimal level of storage management to a full scope of managed services as the organization sees the value of the relationship.
- Expanding from storage management to other managed IT services.
- Adjusting the managed services contract up or down as the organization acquires or divests from companies, or as their storage needs change for other reasons.

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in [Appendix A](#)).

Analysis Of Costs

■ Quantified cost data as applied to the composite

Total Costs									
Ref.	Cost	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
Dtr	Projected contract fees	\$0	\$997,500	\$1,916,250	\$2,520,000	\$2,546,250	\$3,066,000	\$11,046,000	\$8,026,677
Etr	Design and implementation	\$192,500	\$4,752	\$4,752	\$4,752	\$4,752	\$4,752	\$216,260	\$210,514
	Total costs (risk-adjusted)	\$192,500	\$1,002,252	\$1,921,002	\$2,524,752	\$2,551,002	\$3,070,752	\$11,262,260	\$8,237,191

CONTRACT FEES

Evidence and data. Interviewees at three of the four participating organizations contracted for the full scope of managed services for storage as a service, while one organization currently uses a minimum-scope-of-service model.

Modeling and assumptions. For the purposes of this model, Forrester assumes that the composite organization purchases a full-service storage contract.

- The contract is for a five-year term and will eventually involve 15PB of storage.
- Approximately 60% of the storage is contracted for the Premium scope of service because of its criticality in supporting mission-critical applications.
- The other 40% is contracted for the Archival scope of services with a somewhat lower availability commitment.

Risks. The primary risk that another organization would experience a different magnitude of contract fees is if the organization is substantially different from the composite, for example:

- An organization with much larger or smaller storage needs or with a faster or slower ramp-up in storage requirements.
- An organization requiring a different mix of premium and archival storage.
- An organization with a different contract time horizon.

Results. To account for these risks, Forrester adjusted these costs up by 5%, yielding a five-year total PV (discounted at 10%) of \$8.0 million.

Projected Contract Fees								
Ref	Metric	Calculati on	Initial	Year 1	Year 2	Year 3	Year 4	Year 5
D1	Premium scope of services fees	Interviews		\$900,000	\$1,725,000	\$2,200,000	\$2,150,000	\$2,600,000
D2	Archive scope of services fees	Interviews		\$50,000	\$100,000	\$200,000	\$275,000	\$320,000
Dt	Projected contract fees	D1+D2	\$0	\$950,000	\$1,825,000	\$2,400,000	\$2,425,000	\$2,920,000
	Risk adjustment	↑5%						
Dtr	Projected contract fees (risk-adjusted)		\$0	\$997,500	\$1,916,250	\$2,520,000	\$2,546,250	\$3,066,000
Five-year total: \$11,046,000				Five-year present value: \$8,026,677				

DESIGN AND IMPLEMENTATION

Evidence and data. At the start of the relationship, executives told Forrester that their IT and business stakeholders sat down with Hitachi experts to build a plan to move the management of their storage operations. Customers shared their organizations’ existing IT infrastructure and architecture plans, clarified measurable service level requirements, and provided Hitachi with any other information needed to form the basis of the contract commitments.

In addition to the upfront design phase, the IT organization continued to work with Hitachi to monitor and adjust capacity requirements, but on a much less time consuming basis.

Modeling and assumptions. Forrester assumes that

- Hitachi conducts activities to successfully transition the organization to managed services, including onboarding meetings, process integration, security access, remote connectivity and infrastructure, establishing reporting tools and processes, and service desk activation.
- Someone in the IT organization spends 15 hours per quarter working with Hitachi to anticipate possible changes in capacity or service level requirements.

Risks. Other organizations may experience different costs in this area as a result of:

- The size and complexity of the data to be stored and managed by Hitachi.
- The mix of in-house, Hitachi, and in some cases, third-party resources required to make the move to a managed system.
- The rate of pay for IT and business professionals undertaking design and implementation tasks.

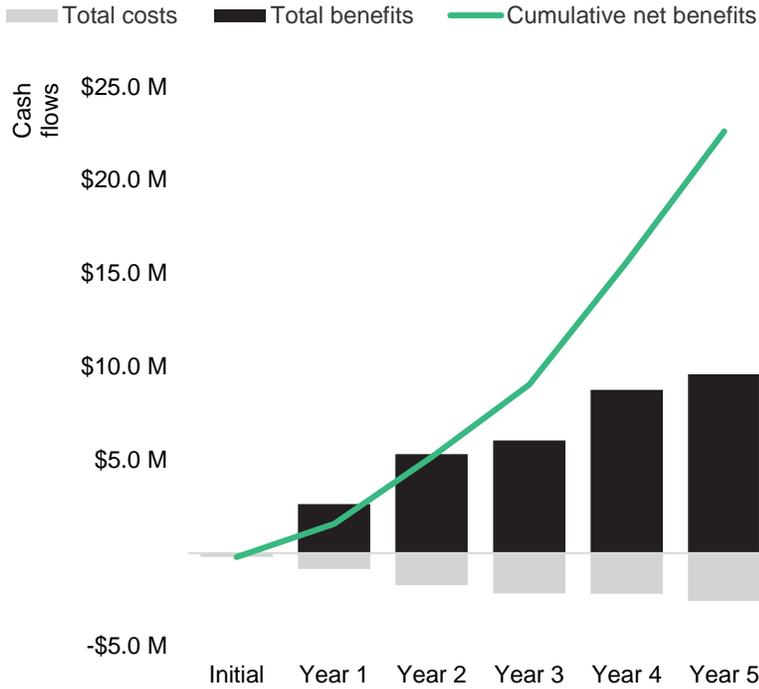
Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a five-year, risk-adjusted total PV of \$210,000.

Design And Implementation								
Ref	Metric	Calculati on	Initial	Year 1	Year 2	Year 3	Year 4	Year 5
E1	Design and implementation fees	Interviews	\$175,000					
E2	Hours ongoing forecasting with Hitachi	Interviews	0	60	60	60	60	60
E3	Average fully burdened annual IT salary	Interviews		\$71	\$75	\$79	\$83	\$87
Et	Design and implementation	E1	\$175,000	\$4,320	\$4,320	\$4,320	\$4,320	\$4,320
	Risk adjustment	↑10%						
Etr	Design and implementation (risk-adjusted)		\$192,500	\$4,752	\$4,752	\$4,752	\$4,752	\$4,752
Five-year total: \$216,260			Five-year present value: \$210,514					

Financial Summary

CONSOLIDATED FIVE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI and NPV for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI and NPV values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
Total costs	(\$192,500)	(\$1,002,252)	(\$1,921,002)	(\$2,524,752)	(\$2,551,002)	(\$3,070,752)	(\$11,262,260)	(\$8,237,191)
Total benefits		\$3,744,203	\$5,862,671	\$6,616,591	\$9,291,805	\$10,162,005	\$35,677,274	\$25,876,379
Net benefits	(\$192,500)	\$2,741,951	\$3,941,669	\$4,091,839	\$6,740,803	\$7,091,253	\$24,415,014	\$17,639,188
ROI								214%

Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

TOTAL ECONOMIC IMPACT APPROACH

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV Sources are calculated for each total cost and benefit estimate. NPV Sources in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value Sources of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.



PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.



NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.



RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.



DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.



PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Appendix B: Endnotes

¹ Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

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